Washington State Public Health Action Plan For
Heart Disease and Stroke Prevention and Management

A Vision for the Future:

It doesn't matter who you are, where you live, or what you know:

In Washington State, you have access to a coordinated and effective system of heart disease and stroke education, screening, and care that results in lower risk of vascular events and improved quality of life.

Health

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PUBLIC HEALTH
ALWAYS WORKING FOR A SAFER AND HEALTHIER WASHINGTON

Washington State Department of Health

June 28, 2005

Heart disease and stroke have been leading causes of death in our state for decades. These diseases place a great emotional, physical, and financial burden on us, our families, and our communities. Our racial and ethnic populations continue to face disparate access to quality care to address their higher rates of risk factors and disease, yet these diseases are largely preventable.

By working together, we can make a difference! Health care, worksite, and community partners at the state, local, and tribal levels can reduce premature death and disability due to heart disease and stroke.

Our blueprint—the Washington State Public Health Action Plan for Heart Disease and Stroke Prevention and Management—will guide us from now through 2010 to help make a difference in the lives of the people in Washington State. I am grateful to the Heart Disease and Stroke Prevention Advisory Council, which represented a broad spectrum of organizations, for creating this plan.

We have been given this blueprint—now we must continue to build a strong system to prevent and manage heart disease and stroke. Thank you for being part of improving health in Washington.

Sincerely,

Maxine Hayes, MD, MPH
State Health Officer

Executive Summary

The Washington State Public Health Action Plan for Heart Disease and Stroke Prevention and Management guides a coordinated approach to state policy that supports what research has shown to be the most effective methods to prevent and treat heart disease and stroke. We work toward the following vision for the future:

It doesn't matter who you are, where you live, or what you know:

In Washington State, you have access to a coordinated and effective system of heart disease and stroke education, screening, and care that results in lower risk of vascular events and improved quality of life.

Heart disease and stroke are the first and third leading causes of death, respectively, in the United States and in Washington. More than 16,000 Washingtonians died from cardiovascular disease (CVD) in 2002—more than a third of all deaths in our state. Education and prevention programs to modify behavior would substantially reduce this burden of disease and death, as well as the great costs associated with related hospitalizations and medical procedures, which now exceed $4 billion in our state annually.

To develop a program to reduce CVD morbidity and mortality, the Washington State Heart Disease and Stroke Prevention Advisory Council sought to build on evidence-based guidelines for appropriate prevention and management of heart disease, stroke, and associated risk factors. It recognized the importance of supporting timely arrival of Emergency Medical Services, as well as public awareness of warning signs and symptoms of heart attack and stroke. The council also drew on an Action Framework developed by the U.S. Centers for Disease Control and Prevention that identifies major factors contributing to the progression of CVD and strategies to reduce the risk and manage the disease more effectively. As adapted for Washington State, these strategies are to:

- Control high blood pressure.
- Control high blood cholesterol.
- Recognize signs and symptoms and call 9-1-1.
- Improve emergency response.
- Improve quality of care.
- Eliminate disparities in health care access and health outcomes.

To develop specific goals and objectives for this plan, the advisory council mobilized around these approaches in a series of meetings during January-March 2005. The group developed goals and objectives for a comprehensive system that addresses heart disease and stroke prevention, as summarized on the next page:

Goal 1: A comprehensive set of heart disease and stroke data, integrated from public and private sources, is available to inform, guide, and monitor the action plan and system of care, from policy to practice.

Goal 2: Comprehensive heart disease and stroke prevention and management surveillance is used to transform the operations of the health care delivery system (public and private, local/state/tribal, program and provider) to assure identification of all persons at risk for and with heart disease and stroke.

Goal 3: Washington State residents know the risk factors and warning signs and symptoms for heart attack and stroke in men and women, and they know what actions to take to address their risk factors and seek care when needed.

Goal 4: A state heart disease and stroke prevention steering council is convened by the state Heart Disease and Stroke Prevention Program to sustain and forge partnerships, promote coordinated efforts to implement the action plan, and to support local coalitions, councils, and activities.

Goal 5: A dynamic, collaborative action plan and policies are adopted that empower consumers, result in improved health status and quality of life, reduce costs for the purchasers, and reward providers.

Goal 6: An ongoing process is established to assess and monitor Washington State laws and regulations and identify opportunities to support the implementation of the action plan through new or revised legislation.

Goal 7: Washington State maintains a coordinated and effective heart disease and stroke system of prevention, screening, diagnosis, treatment, and rehabilitation that is available to all citizens.

Goal 8: Education regarding heart disease and stroke prevention and management is available and required for all licensed, registered, or certified health care providers working with CVD to increase awareness, clinical proficiency, and quality of care.

Goal 9: The heart disease and stroke prevention system's accessibility, effectiveness, and quality of care are measured against a consensus set of statewide (public and private) CVD performance measures that include established measurement benchmarks.

Goal 10: Research is integral to the action plan and is encouraged on strategic issues. The practice community is informed of the applicability of established research.

We need active and engaged partners to implement the Washington State Public Health Action Plan for Heart Disease and Stroke Prevention and Management. Through partnerships with institutions, professional organizations, and other groups, we will develop and implement programs and focus work in our communities, worksites, and the health care system.

For more information, see http://www.doh.wa.gov/cfh/heart_stroke/default.htm.

Introduction

We developed this Action Plan to engage all whose work supports the prevention and management of heart disease and stroke in Washington State.

This vital work depends on the contribution of partners throughout our health care system, our worksites, and in every one of our communities—including those who finance and deliver health services and the state, local, and tribal organizations that make the essential connections to people who need these services. Our goal is that this plan guides a coordinated approach to state policy that supports what research has shown to be the most effective methods to prevent and treat heart disease and stroke.

Some Definitions:

Cardiovascular disease (CVD) *refers to any of the disorders that affect the circulatory system. This includes coronary heart disease, congestive heart failure, and stroke.*

Heart disease *refers to any affliction that impairs the structure or function of the heart (e.g., atherosclerotic and hypertensive diseases, congenital heart disease, rheumatic heart disease, and cardiomyopathies).*

Stroke*, also known as cerebrovascular disease or a brain attack, is the interruption of blood supply to the brain due to either an obstruction or rupture of a blood vessel. Stroke that is not fatal often leads to some level of physical or cognitive disability.*

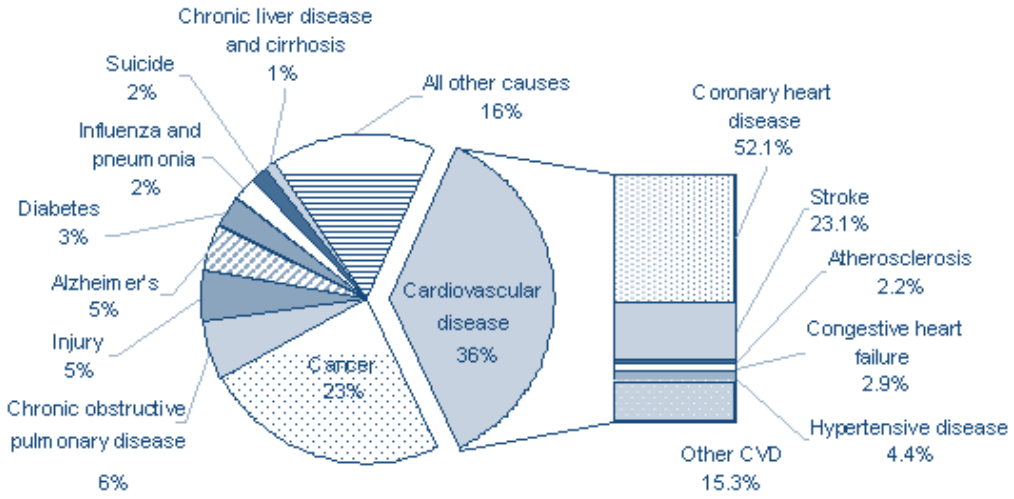
For a more complete glossary, see Appendix A.

The Disease Burden

As reported in *The Burden of Heart Disease and Stroke in Washington State* (December 2004) and as shown in the following chart, the two most common forms of cardiovascular disease (CVD)—heart disease and stroke—are the first and third leading causes of death, respectively, in the United States and in Washington. More than 16,000 Washingtonians died from CVD in 2002—more than a third of all deaths. Appropriate education and prevention programs to modify behavior would substantially reduce this burden of disease and death.

We define the burden of heart disease and stroke in terms of prevalence, morbidity, and mortality rates. Prevalence is difficult to measure precisely. About 7% of adults in Washington say they have been told by a health care professional that they have CVD. Significantly more men than women have CVD, and prevalence increases with age—25% of adults in Washington State age 65 and older have CVD. And these numbers are likely to be an underestimate because many people do not know they have CVD until they suffer a first heart attack or stroke.

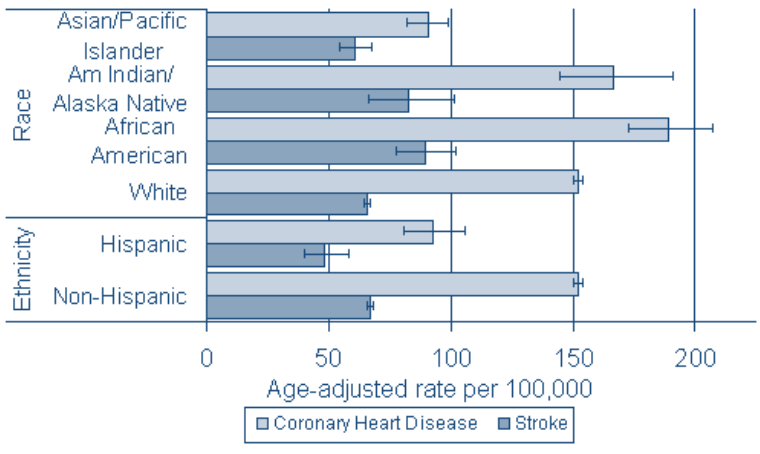
1. Leading Causes of Death
Washington, 2000-02



In 2002, the age-adjusted mortality rate for coronary heart disease—the most common form of heart disease—was lower in Washington State than for the nation as a whole (148 deaths per 100,000 population for Washington compared with 178 per 100,000 for the United States). Coronary heart disease mortality is higher in specific groups such as men, older people, and African Americans. While coronary heart disease death rates for most racial and ethnic groups in Washington were lower than the corresponding U.S. rates, the mortality rate among American Indians and Alaska Natives in Washington was higher than the rate for this group nationwide (166 deaths per 100,000 and 118 deaths per 100,000, respectively).

The picture for stroke mortality in our state is alarming: 66 deaths per 100,000 population, the eighth highest in the nation, compared to the U.S. rate of 58 deaths per 100,000. American Indians and Alaska Natives in Washington died from stroke at twice the national rate for this racial group (82 deaths per 100,000 compared with 41 deaths per 100,000); this is higher than the Washington stroke death rate for whites (66 deaths per 100,000) and nearly equal to the rate for African Americans (89 deaths per 100,000). See Figure 2, below, for rates of death from both coronary heart disease and stroke.

2. Mortality Rates for Coronary Heart Disease and Stroke
By Race and Ethnicity
Washington, 2000-02



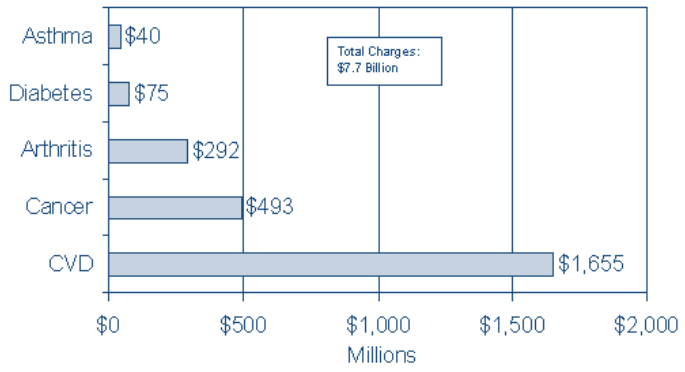
95% confidence intervals are displayed as bars with two hatches—this means that, in 95 out of 100 cases, the true value is contained within this interval. For more information on the use of confidence intervals throughout this document, see *The Health of Washington State*, 2002.[1]

The Burden of Hospitalizations

Mortality rates represent the burden of only the worst-case scenario—death—for a disease process that often begins decades earlier. Additional burden is represented by the costly procedures and hospitalizations of those with CVD.

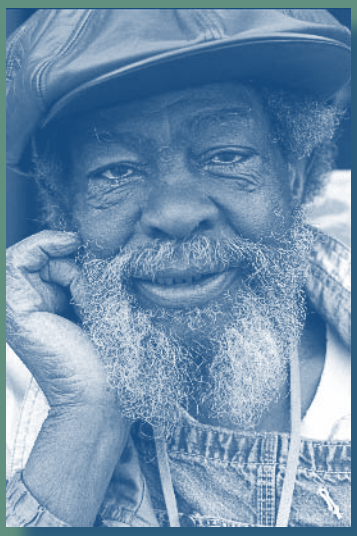
CVD accounted for nearly 4 of every 10 hospitalizations in Washington State in 2002. Patients with either heart disease or stroke had a longer average length of stay than those hospitalized for other conditions. In 2002, as the chart below shows, hospitalization charges for CVD amounted to $1.7 billion—more than for any other chronic condition. But this figure underestimates the true cost of CVD, as it accounts for only direct charges for inpatient hospitalizations with CVD as the first listed diagnosis and does not include indirect costs such as outpatient procedures and missed time at work. When inpatient hospitalizations with CVD as any diagnosis were considered, total charges amounted to more than $4.1 billion, more than half of the charges for inpatient hospitalizations.

3. Hospital Charges* for Major Chronic Diseases
Washington, 2002



* Based on first-listed diagnosis

After leaving the hospital, CVD patients are more likely than others to require additional skilled care. And skilled care, both home-based and community-based, to assist with activities of daily living can be very costly. More CVD patients, particularly those hospitalized for stroke and congestive heart failure, were discharged to skilled nursing facilities compared with patients with other conditions. Patients hospitalized for stroke or congestive heart failure were also more likely to die during their stay (8.8% for stroke, 4.8% for congestive heart failure) when compared with those hospitalized for non-CVD conditions (1.7%).



System Priorities

A system to reduce CVD morbidity and mortality should be comprehensive. It should address important evidence-based guidelines for appropriate prevention and management of heart disease, stroke, and associated risk factors. But it should not stop there. A comprehensive statewide 9-1-1 system, to ensure timely arrival of Emergency Medical Services (EMS), combined with public awareness of warning signs and symptoms, empowers patients, providers, and the community to take an active role in improving outcomes of those who experience a heart attack or stroke.

Interventions applied "upstream" in the health care system have the potential to reduce both cardiac and stroke disease and death rates. These include increased use of evidence-based guidelines for CVD prevention in patients at high risk and an effective and informed EMS system and team of first responders to transport patients rapidly to a hospital capable of evaluating the patient for eligibility to receive time-dependent interventions.

The following table shows that nearly two-thirds of cardiac deaths in Washington occur before transport to a medical facility.

Location of Cardiac Death
Washington, 2000-02

Location	Percent	Age-adjusted rate per 100,000	(95% CI)†
Hospital	33.3	68.0	(65.8, 70.2)
Emergency room	4.5	9.0	(8.2, 9.8)
In transport	0.1	0.2	(0.1, 0.4)
Total pre-transport	62.1	126.0	(123.1, 128.9)
Home	30.9	62.7	(60.6, 64.8)
Other places	5.2	10.4	(9.5, 11.2)
Nursing home (includes hospice)	26.0	53.0	(51.1, 54.9)

† 95% confidence intervals

Risk Factors

Several risk factors can contribute to CVD. Some—such as age, family history, and genetics—cannot be changed. These are nonmodifiable risk factors that represent a significant contribution to the burden of disease. Washington ranks eighth among the states in the rate at which its population is aging. By 2020, the number of Washington residents ages 65 and older will double to about a million.

Several risk factors contributing to heart disease and stroke are modifiable. These include high blood pressure, high blood cholesterol, diabetes, obesity, tobacco use, poor nutrition, and physical inactivity. These risk factors and the diseases to which they lead affect people in their wage-earning years, causing loss of income, an increase in the number of days lost from work, and decreased productivity while at work.

According to the 2003 Washington Behavioral Risk Factor Surveillance System (BRFSS) survey[2], men were more likely than women to have high blood pressure and high blood cholesterol. The prevalence of both conditions increased with age and decreased as annual income and educational levels increased. Prevalence of both high blood pressure and high cholesterol was lower in Asian and Pacific Islanders compared with whites; prevalence of these factors for African Americans and American Indians and Alaska Natives was similar to whites. Prevalence of both conditions was significantly lower for Hispanics compared with non-Hispanics. Respondents living in rural areas were more likely to have both high blood pressure and high cholesterol compared with those living in urban areas.

Those who have CVD are significantly more likely to have high blood pressure, high blood cholesterol, diabetes, and obesity compared with those without CVD. Controlling these risk factors through lifestyle modification and medication, if appropriate, is especially important for those who have already suffered a first event, to prevent a recurrent heart attack or stroke.

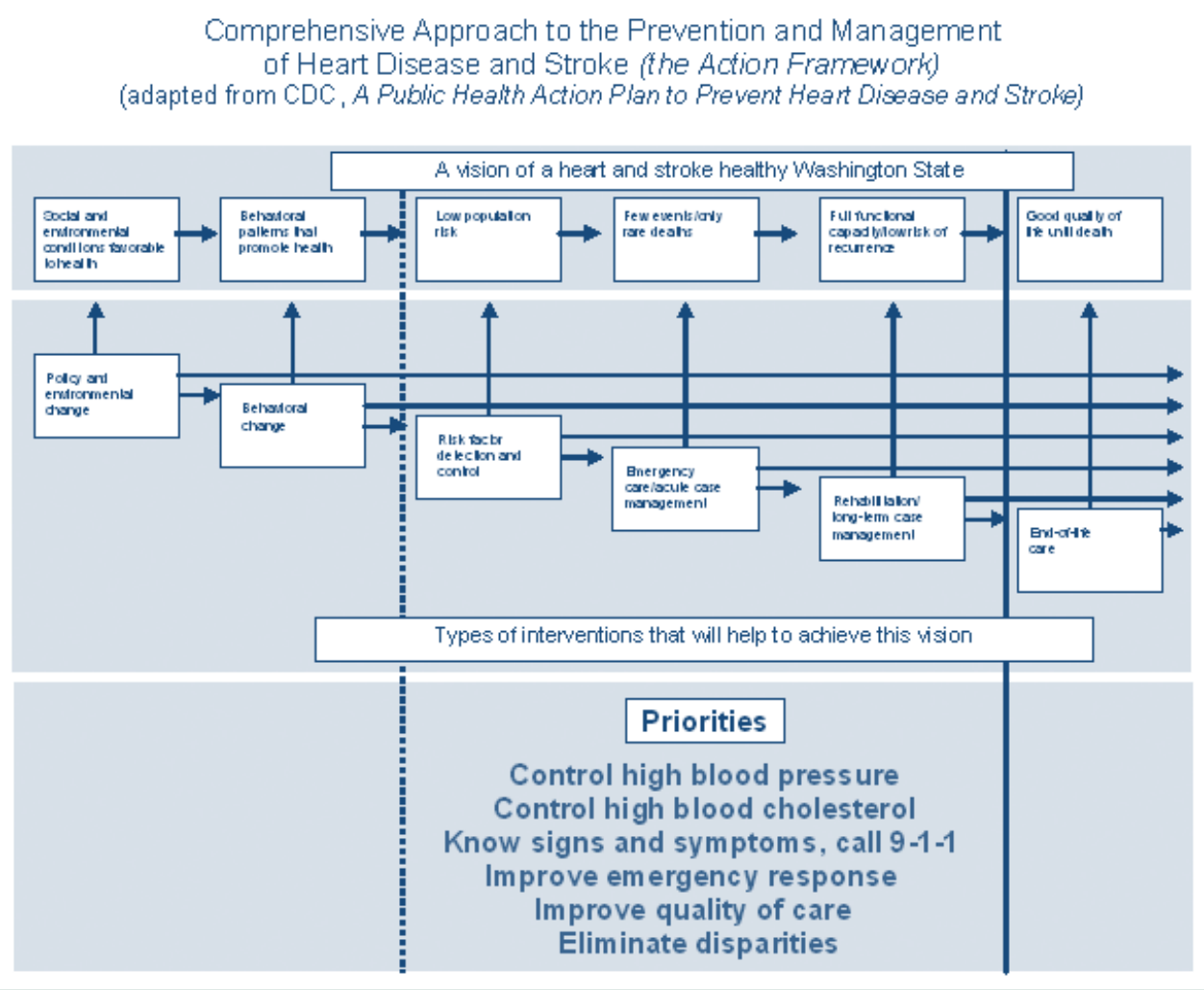
State and local level data related to detection, treatment, and control of high blood pressure and high blood cholesterol are scarce. According to the 2003 BRFSS, the proportion of women screened for high blood cholesterol was significantly higher than that of men. Increasing age, income, and educational level increased the likelihood of screening. Compared with whites, Asian and Pacific Islanders were less likely to have their cholesterol checked, and Hispanics were less likely than non-Hispanics. The likelihood of taking medication to control high blood pressure increased for older age groups and for women. Hispanics were less likely than non-Hispanics to take high blood pressure medications.

Guidelines addressing treatment for high blood pressure[3] and high blood cholesterol[4] strongly recommend lifestyle modification to treat these conditions at the early stages. Such modifications include improving eating habits and nutrition, increasing physical activity, and quitting tobacco use. Only at a more advanced stage of either high blood pressure or high blood cholesterol—or for those with a family history of premature CVD—do the guidelines recommend taking medication to help manage these conditions.

A recent state inventory of current activities addressing heart disease and stroke prevention and management in Washington reveals both system strengths and opportunities for improvement. Strengths of the current state system for the prevention of heart disease and stroke include: capacity for inter-agency cooperation, efforts of health plans to conduct disease management programs and provide coverage for telemedicine, and quality improvement activities, including pay-for-performance. Opportunities for improving the system include: increasing access to needed services for rural residents and tribes (among others), addressing cultural factors when designing programs to address lifestyle changes, and improving systems so that people with heart attack or stroke are taken to appropriate facilities. Finally, while Washington is fortunate to have a strong EMS system, recommendations developed in 2002 to improve emergency response systems for acute cardiac events were never implemented due to a lack of funding[5].

Developing the State Public Health Action Plan

The Washington State Heart Disease and Stroke Prevention Program has adopted a framework from the U.S. Centers for Disease Control and Prevention (CDC) to engage all interested partners in achieving national goals for the prevention and management of heart disease, stroke, and their associated risk factors. In *A Public Health Action Plan to Prevent Heart Disease and Stroke* (PHAP) (http://www.cdc.gov/cvh)[6], released in 2003, the CDC outlined an Action Framework that identifies the major factors that contribute to the progression of cardiovascular disease, as well as possible strategies to reduce risk and manage the disease more effectively. This approach, shown below, addresses needed upstream interventions that focus on policy and environmental change to improve conditions that are favorable to health, as well as those interventions that are targeted to the population living with long-term effects from heart disease or stroke.



The Washington State Heart Disease and Stroke Prevention program has adopted and built on this framework by integrating CDC priorities for state programs. These are to:

- Control high blood pressure.
- Control high blood cholesterol.
- Recognize signs and symptoms and call 9-1-1.
- Improve emergency response.
- Improve quality of care.
- Eliminate disparities in health care access and health outcomes.

By placing these priorities within the Action Framework, we can see clearly the critical areas our state Action Plan should address: risk factor detection and control, emergency care and acute case management, and rehabilitation and long-term case management. With this approach, we do not emphasize end-of-life care in this scope of work, so the Action Framework places a solid line before this type of intervention. The framework places a dotted line to denote the benefit of upstream activities such as policy, environmental, and behavioral change interventions on detecting risk factors and improving emergency care, acute and long-term case management, and rehabilitation.

To create our state Action Plan, the Washington State Heart Disease and Stroke Prevention Advisory Council mobilized around this framework in a series of meetings during January-March 2005. The group developed goals and objectives to address each of the 10 Essential Services of Public Health (see box, on page 15). This ensured that the plan would be guided by sound public health principles and that it would address all priority areas of the Action Framework.

(continued on page 18)

The Heart Disease and Stroke Prevention Advisory Council used an established context, the 10 Essential Services of Public Health, to frame the work to build capacity for heart disease and stroke prevention in Washington State. Together, the essential services represent the ways that public health agencies practice their mandate to keep our communities healthy and protect us from harm.

A committee of health policy makers convened by the CDC defined the essential services in 1994. The services are aligned with the three core public health functions of assessment, policy development, and assurance[7]. The CDC uses the 10 Essential Services to set measurable standards of performance for our public health system at the local, state, and federal level.

The essential services are:

Assessment

1. Monitor health status to identify community health problems.
2. Diagnose and investigate health problems and hazards.
3. Inform, educate, and empower people about health issues.

Policy Development

4. Mobilize partnerships to identify and solve health problems.
5. Develop policies and plans that support health efforts.

Assurance

6. Enforce laws and regulations that protect health and ensure safety.
7. Link people to needed personal health services and assure the provision of health care.
8. Assure a competent public and personal health care workforce.
9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.
10. Research for new insights and innovative solutions to health problems.

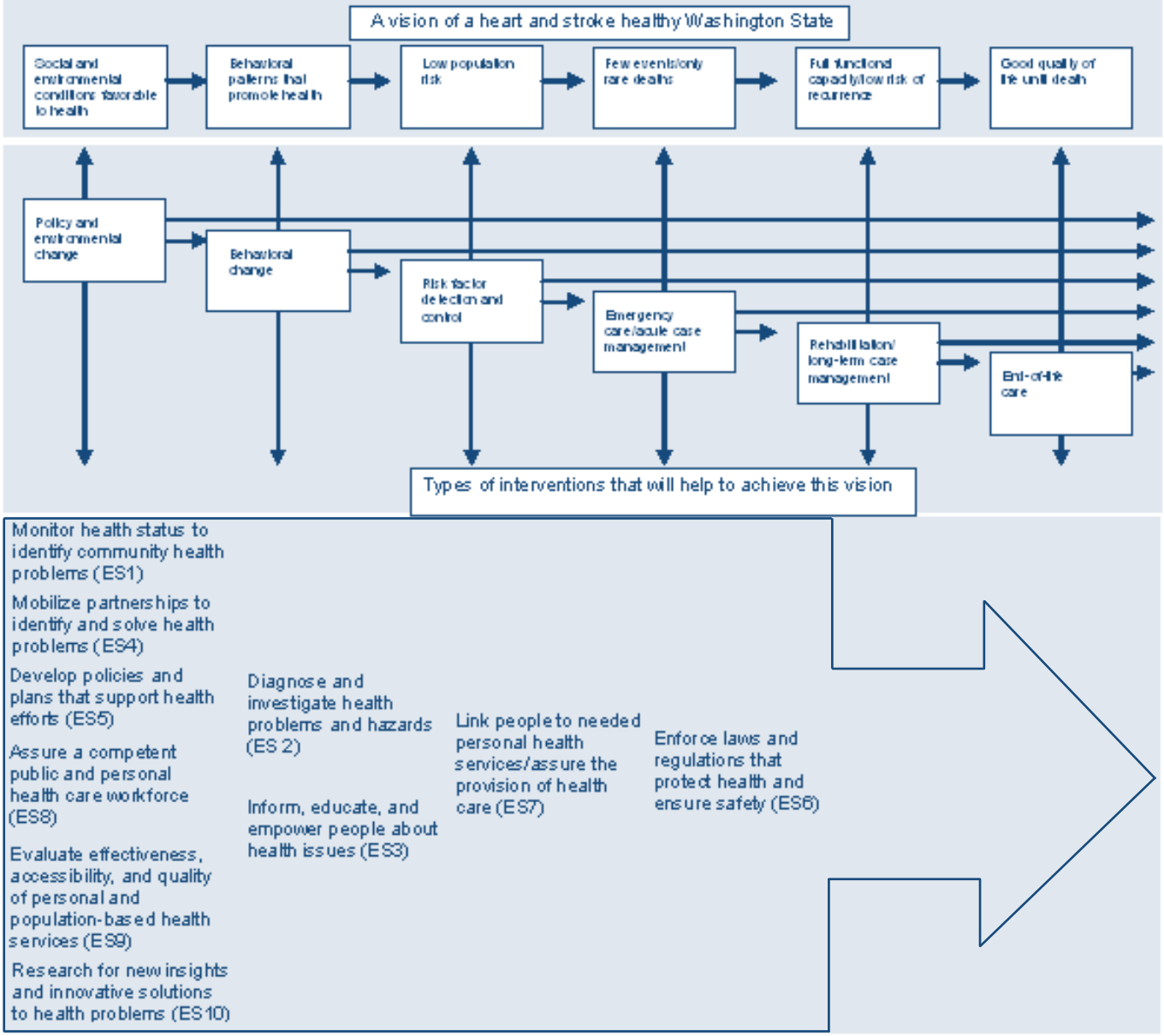
A comprehensive system that addresses heart disease and stroke prevention should include activities in each of these essential services.

(continued from page 16)

The state planning process intentionally drafted long-term goal statements around each of them. In this way, we can measure progress in all areas. Because the work of the Heart Disease and Stroke Prevention Program is also guided by the framework adapted from the PHAP, it is important to understand how the 10 Essential Services of Public Health align with that structure, as shown on the next page.

As would be expected, the essential services are broad enough to cut across multiple areas of the framework. Essential Service #1 (ES1), monitoring health status to identify community health problems, refers to monitoring the incidence and prevalence of first and recurrent events and factors related to CVD. ES1 is an important and necessary element to ensure that social and environmental conditions, health-promoting behaviors, emergency response, hospital care, and rehabilitation services are sufficient to maintain a good quality of life until death. The same logic applies for ES4, ES5, ES8, ES9, and ES10, in that they are all crosscutting through the entire framework. ES2 and ES3 become important as early as the development of adverse behavioral patterns. ES7, linking people to needed personal health services and assuring the provision of health care, becomes especially important in identifying populations at risk. Finally, the role of enforcing laws and regulations to protect health and ensure safety that are relevant to heart disease and stroke prevention (ES6) becomes more prominent in assuring appropriate and prompt emergency care. Because all 10 Essential Services of Public Health address the areas of risk factor detection and control, emergency care and acute case management, and rehabilitation/long-term case management, the Heart Disease and Stroke Prevention Advisory Council used them all to develop this action plan. (For more information on the 10 Essential Services, see http://www.phppo.cdc.gov/nphpsp/10EssentialPHServices.asp).

Alignment of the 10 Essential Services of Public Health with the Action Framework



In developing our state action plan, the Heart Disease and Stroke Prevention Advisory Council used the 10 Essential Services of Public Health as the structure to define *goals* for our work over the next five years and specific *objectives* for the next one to two years. In the following section of this report, we show each essential service and its corresponding goal and objectives. We also show the measures by which each of the goals will be evaluated. Evaluation measures are modified from the CDC *State Public Health System Performance Standards*. We concluded this report with some suggested "next steps."

Today in Washington:

Washington State has a wealth of data that are used to monitor health status, including information generated by the Behavioral Risk Factor Surveillance System (BRFSS) survey, the Comprehensive Hospital Abstract Reporting System (CHARS)[8], and data from the state Department of Health Center for Vital Statistics[9]. In addition, numerous partners maintain data systems that monitor the health status of specific populations, including the Comprehensive Assessment Reporting Evaluation tool for assessing the older population, the McKesson Health Solutions CareEnhance Report for Medicaid clients, and the American Indian Health Care Delivery Plan.

Data that are essential to addressing the continuum of care—from risk factor detection and control through rehabilitation and long-term case management— are spread across multiple organizations and agencies. For this reason, it is challenging to conduct a comprehensive assessment to monitor health status effectively. Collaboration is needed to integrate and manage public health-related information systems for this purpose.

Goal 1:

A comprehensive set of heart disease and stroke data, integrated from public and private sources, is available to inform, guide, and monitor the action plan and system of care, from policy to practice.

Objectives:

1. Identify the parties with cardiovascular data and a potential site for an integrated data warehouse.

2. Inventory public and private CVD data sources.

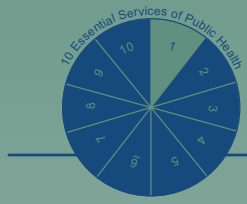
3. Identify key CVD data elements needed.

4. Identify gaps, and plan and seek solutions, in areas including:
   - Screening of health plan data as a basis for evaluation and inventory of trends
   - Burden (incidence, prevalence), from improved data sources over current system of self-report, death certificates, and hospital diagnoses, at the state and local levels, where appropriate. Assess the burden of disability, social burden including quality of life, and the burden on the long-erm care system.
   - The Comprehensive Hospital Abstract Reporting System (CHARS)—for example, adding data on race and ethnicity
   - Primary prevention in patients with identified risk factors—high blood pressure, high blood cholesterol, diabetes
   - Acute care, emergency transport, and rehabilitation
   - Secondary prevention in patients with established heart disease or stroke

5. Establish data-sharing agreements.

6. Build the CVD data warehouse.

7. Develop a communication plan regarding the data warehouse and how to access data.



1. Monitor health status to identify community health problems.

Evaluation:

1. The state's health status is assessed and monitored through data describing critical indicators of health, illness, and health resources that are collected in collaboration with local public health systems and other state partners. Particular attention is given to the vital statistics and health status of identified special and high-risk groups.

2. Assistance and capacity-building are provided to local public health and other state partners in their efforts to monitor health status and to identify health problems. Also, community assets and resources are identified that support the plan in promoting health and improving quality of life.

3. Activities to monitor health status and to identify health problems are reviewed on a periodic basis, and results are used to improve the quality and outcome of the efforts. Collaboration in integrating and managing public health-related information systems is supported and encouraged.

4. Technology and other methods to interpret and communicate health information to diverse audiences in different sectors are effectively managed and used to monitor health status and to identify health problems in Washington.

Today in Washington:

The risk factors that contribute to the largest burden of heart disease and stroke are high blood pressure, high blood cholesterol, and diabetes. These conditions can be prevented or managed through systematic adherence to established, evidence-based guidelines that include appropriate nutrition, physical activity, and medication when appropriate. Additional approaches can help to redesign the health care system to improve the quality of care to patients with chronic conditions. Currently, the best estimate of the statewide prevalence of the risk factors mentioned above is from the BRFSS survey data collected over the telephone from individuals who have been told they have these risk factors. There are limitations in interpreting these data, because the information is self-reported and has not been validated through a physical exam or lab test.

Goal 2:

Comprehensive heart disease and stroke prevention and management surveillance is used to transform the operations of the health care delivery system (public and private, local/state/tribal, program and provider) to assure identification of all persons at-risk for and with heart disease and stroke.

Objectives:

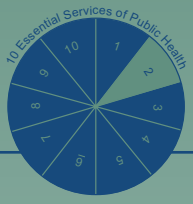
1. Develop new and strengthen existing partnerships with local health jurisdictions, tribes, and providers to identify and diagnose high risk persons in local communities.

2. Adopt appropriate evidence-based practices, including the Planned Care Model[10] and national guidelines for heart disease and stroke for the screening of individuals at increased risk of CVD, ensuring that the individuals are:
   - Identified
   - Offered evidence-based diagnostic evaluations
   - Treated appropriately.

3. Provide emphasis for special or high-risk groups:
   - Racial and ethnic groups (American Indian and Alaska Native, Asian American and Pacific Islander, African American, Hispanic)
   - Women
   - People eligible for Medicare (age)
   - Uninsured
   - Low-income.

4. Use annual data from BRFSS, CHARS, Vital Statistics, and other data sets as appropriate.

5. Support the development and use of state-based examination survey data that uses laboratory measures, clinical exam data, and questionnaire data to establish a better estimate of the burden of risk and disease, and to guide program planning.



2. Diagnose and investigate health problems and hazards.

Evaluation:

1. Through collaboration with local public health systems and other state partners, data are collected that investigate patterns of heart disease and stroke prevalence, as well as the prevalence of major risk factors.

2. Technical assistance and resources are provided to local public health systems and other state partners to ensure that appropriate evidence-based practices and national guidelines are adopted for screening individuals at increased risk of CVD.

3. Data and activities are reviewed on a regular basis, and findings are used to improve the quality and outcome of efforts to diagnose and investigate CVD and associated risk factors.

4. Resources are effectively invested, managed, and applied to identify and diagnose high-risk persons, as well as to support existing and proposed data sets needed to investigate further the burden of CVD and associated risk factors.

Today in Washington:

BRFSS data suggest that some people may recognize the signs and symptoms of a heart attack and know to call for emergency help. Hospital data clearly indicate, however, that very few acute stroke patients arrive within the small window of opportunity for time-dependent treatment. Health policy makers do not know the number of people who could have benefited from more prompt recognition and action. And despite increased media attention to the impact of heart disease and stroke, many still do not know the burden these diseases and associated risk factors place on individuals, families, communities, the workplace, and the health care system.

Goal 3:

Washington State residents know the risk factors and warning signs and symptoms for heart attack and stroke in men and women, and they know what actions to take to address their risk factors and seek care when needed.

Objectives:

1. Use effective, traditional and innovative, and targeted communication mechanisms to decrease resistance to change and to improve health literacy and access to health information and resources. Communicate consistent, simple messages targeted to
   - Cities and communities
   - Health care settings
   - Schools
   - Worksites.

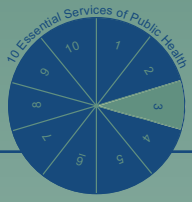
2. Collaborate with the American Heart Association/ American Stroke Association (AHA/ASA) to develop consistent messages to increase public awareness about risk factors, signs and symptoms, and appropriate action to take to address them.

3. Develop culturally appropriate communication strategies with special emphasis on disproportionately affected and hard-to-reach populations.

4. Assure the development and dissemination of tools to educate about risk factors, established disease, emergency response, and rehabilitation.

5. Develop educational strategies to empower patients to make informed choices about the care they receive.

6. Partner with other state chronic disease programs and existing networks that share similar target audiences and risk factors.



3. Inform, educate, and empower people about health issues.

Evaluation:

1. Health communication and health education and awareness initiatives are based on evidence of effectiveness, and they include culturally and linguistically appropriate messages.

2. Accessible health information and educational resources and strategies are developed in partnership with and reinforced by local public health systems and other partners.

3. The effectiveness of health communication and health education and awareness initiatives is assessed on a regular basis, and results are used to improve the quality of the messages.

4. Resources are effectively invested, managed, and applied to develop, disseminate, and assess health communication and health education initiatives.

Today in Washington:

Several entities in Washington State address some aspect of heart disease and stroke prevention and management. Currently, however, a formal process to convene a representative group of these entities does not exist. The Heart Disease and Stroke Prevention Advisory Council came together to examine existing evidence and develop a state plan despite the lack of a formal mechanism. The building of a statewide partnership is critical to collaborate in the performance of the essential services to improve the state's health status.

Goal 4:

A state heart disease and stroke prevention steering council is convened by the state Heart Disease and Stroke Prevention Program to sustain and forge partnerships, promote coordinated efforts to implement the action plan, and to support local coalitions, councils, and activities.

Objectives:

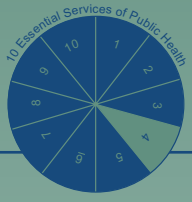
1. Create a steering council to identify and develop a statewide network of partners to implement the action plan and address CVD on an ongoing basis.
   - Link public (state and local) and private health care providers and practitioners, public health professionals, counties, and tribes.
   - Sustain partnerships at all levels (state, tribal, regional, local).

2. Identify a stroke task force with the American Heart Association/American Stroke Association to develop an integrated system of care for stroke.

3. Collaborate with purchasers of health insurance to develop coordinated worksite health and productivity activities and performance measures around heart disease and stroke.

4. Build and strengthen the partnership between the state Heart Disease and Stroke Prevention Program and regional EMS systems and hospital emergency room systems to implement evidence-based practices and models for first response and care for heart disease and stroke.

5. Use state partnerships, including other state chronic disease programs, as well as incentives to support quality improvement efforts and implementation of the Planned Care Model at the community level and in primary and specialty care and hospitals.



4. Mobilize partnerships to identify and solve health problems.

Evaluation:

1. Local public health systems and other partners are convened in a coordinated fashion to identify priorities and create effective strategies.

2. Assistance and support are provided to organize and undertake actions to improve the health of the state's communities.

3. Partnership activities are assessed for effectiveness on a regular basis, and results are used to ensure that a strong network exists to identify priorities and create effective strategies.

4. Partnerships are built to use the full range of available human and material resources to improve the health status of residents throughout the state.

Today in Washington:

A statewide effort in 1995 produced the Washington State Heart Disease and Stroke Prevention Plan—a comprehensive state plan to address the prevention of heart disease and stroke. The 1995 state plan recommended approaches to address the environment, behaviors, risk factors, and the diseases. Because of the subsequent implementation of programs that focus solely on environmental and policy approaches to reduce the prevalence of risk factors, this plan needs to reflect the increased emphasis on risk factor detection and control, emergency care and acute case management, and rehabilitation and long-term case management.

Goal 5:

A dynamic, collaborative action plan and policies are adopted that empower consumers, result in improved health status and quality of life, reduce costs for the purchasers, and reward providers.

Objectives:

1. Adopt the action plan and the action steps and policies needed to implement the plan.

2. Create a framework for performance of the CVD system that facilitates better communication and use of population-based medicine and standardized evidence-based guidelines for care. Specific activities include:
   - Promoting development of a coordinated, standardized approach, integrating the continuum of care: addressing prevention, pre-hospital, hospital, rehabilitation.
   - Encouraging the adoption of heart disease and stroke-specific quality improvement programs in hospitals throughout the state.
   - Standardizing access to thrombolytics for qualifying acute stroke patients within 60 minutes of arrival at all licensed hospitals with emergency rooms that have the capability to provide such therapy, and exploring innovative ways to guarantee such capabilities at hospitals rapidly accessible to all Washingtonians.
   - Exploring possible policy development to allow EMS providers caring for acute heart attack or stroke patients to bypass hospitals not meeting standards for acute care.

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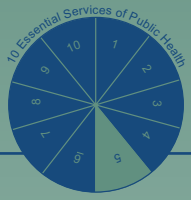


5. Develop policies and plans that support health efforts.

- Expanding air ambulance services to equalize access to emergency heart attack and stroke care throughout the state.
- Improving the link between EMS and hospital facilities in the appropriate transport of stroke victims.
- Improving overall capacity of hospital facilities to manage stroke victims.
- Increasing the number of facilities following guidelines for cardiovascular disease care and adherence and monitoring of compliance, i.e., Joint Commission on Accreditation of Healthcare Organizations (JCAHO) certified primary stroke centers.
- Exploring ways to regulate certified primary stroke centers.
- Enhancing delivery of published guidelines for heart disease, stroke, and related risk factors.
- Addressing liability relief for rural hospitals that offer emergency stroke and heart attack care with limited specialty back-up.
- Examining health financing mechanisms, including an awards system for medical groups that achieve improved outcomes for their patients with heart disease or stroke.

Evaluation:

1. Comprehensive health improvement planning and policy development are implemented that integrate health status information, public input, analysis of policy options, recommendations for action based on proven interventions, and information for policy makers.

2. Appropriate assistance and capacity-building are provided to establish strategies and actions to guide community health improvement at the state, tribal, and local levels.

3. A democratic process of dialogue and debate is supported between groups affected by proposed health plans and policies prior to adoption of such plans and policies.

4. Resources are effectively managed and applied to assure that health planning and policy development practices meet the needs of the population.

Today in Washington:

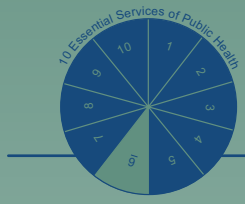
State policy makers need to place more emphasis on enforcement of regulations to address heart disease and stroke prevention and management. Two potential areas that could be explored include ensuring that practitioners have sufficient expertise through the credentialing process and requiring that acute cardiac and stroke patients are transported to appropriate facilities.

Goal 6:

An ongoing process is established to assess and monitor Washington State laws and regulations and identify opportunities to support the implementation of the action plan through new or revised legislation.

Objectives:

1. Identify all laws and regulations that pertain to the CVD system.
2. Communicate laws and regulations to all key constituencies.
3. Assess compliance and enforcement of existing laws and regulations, and collaborate with tribes.
4. Develop new mechanisms to encourage compliance.
5. Identify gaps, needed changes, and new opportunities in laws and regulations.



6. Enforce laws and regulations that protect health and ensure safety.

Evaluation:

1. All proposed laws or regulations are based on current public health science and best practice.

2. Appropriate assistance is provided to educate stakeholders about any proposed law or regulation relevant to heart disease and stroke prevention and management.

3. Processes to assess and monitor state laws and regulations are reviewed on a regular basis, and results are used to improve process quality.

4. Resources are appropriately used to develop, review, and communicate relevant laws or regulations.

Today in Washington:

Washington State has a lower rate of death from coronary heart disease than does the United States as a whole. It is not known whether the lower rate is the result of fewer Washingtonians developing coronary heart disease in the first place or because Washington has a better system of treatment and rehabilitation. A closer examination indicates that there are several populations that are disproportionately burdened with more disease than other groups. Our efforts to prevent heart disease are effective only for some residents of our state.

The rate of death from stroke in the state is higher than most of the other states in the country. Some populations are more affected by stroke than others. Also, state policy has not addressed the urgency of receiving prompt attention and treatment for stroke to the degree it has for heart attack. It is critical to connect people with needed health services so that risk factors are detected and treated, heart attacks and strokes are recognized and treated early, and appropriate levels of rehabilitation are provided.

Goal 7:

Washington State maintains a coordinated and effective heart disease and stroke system of prevention, screening, diagnosis, treatment, and rehabilitation that is available to all citizens.

Objectives:

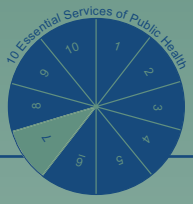
1. Ensure that a comprehensive system of care for heart disease and stroke prevention and management is in place for the entire continuum of care.

2. Develop and implement innovative ways to increase access to cardiology, neurology, and rehabilitation care.

3. Promote a coordinated and effective EMS system in operation statewide for CVD interventions.
   - Support statewide EMS capacity for response to emergency cardiac or stroke events.
   - Identify and address disparities in access to and quality of EMS across the state.
   - Standardize EMS education.

4. Identify, prioritize, and eliminate disparities in access to delivery of care for disproportionately affected groups.
   - Improve response time in rural areas.
   - Increase public access to automated external defibrillators and trained users.

5. Establish a standardized statewide pre-hospital triage plan for acute heart disease and stroke that is linked with a registry that can track process and outcome measures for quality improvement.



7. Link people to needed personal health services and assure provision of health care.

Evaluation:

1. The availability of personal health care services for the state population is assessed, and statewide partners and local public health systems work collaboratively to help assure that the entire state population has access to quality care.

2. Assistance is provided to local public health systems and other state partners to identify medically underserved populations and to develop innovative approaches for meeting their health care needs.

3. Performance is reviewed to measure effectiveness in identifying barriers to health care access and gaps in the availability of personal health care as well as ability to assure that all state residents receive appropriate and timely care.

4. Resources are managed effectively to assure the provision of health care to meet the needs of the population.

Today in Washington:

There are several professionals who must be credentialed to provide care to those with or at risk for heart disease or stroke. Credentialing provides significant opportunity to conduct better education and training to these and other public and personal health professionals to enhance knowledge and improve quality of care.

Goal 8:

Education regarding heart disease and stroke prevention and management is available and required for all licensed, registered, or certified health care providers working with CVD to increase awareness, clinical proficiency, and quality of care.

Objectives:

1. Identify and develop easily accessible, innovative CVD education and continuing medical education opportunities for all levels of clinicians in collaboration with academic and community partners.

2. Increase the proportion of hospitals with JCAHO primary stroke center certification.

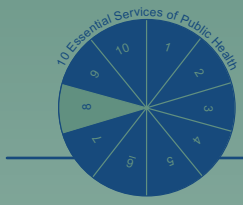
3. Increase in the number of CME offerings, and expand quality improvement activities to encourage participation in clinical learning to improve care for heart disease and stroke patients.

4. Promote and encourage a diverse and culturally knowledgeable and competent work force including non-licensed personnel.

5. Provide tools and templates for increasing competence.

6. Work with academic and community partners to distribute and encourage implementation of clinical practice guidelines.

7. Apply incentives to providers who can demonstrate quality improvement through established measures, such as existence of a patient registry or improved patient outcomes.



8. Assure a competent public and personal health care workforce.

Evaluation:

1. Training and continuing education are identified and developed that offer innovative CVD educational opportunities for all levels of clinicians in partnership with local public health systems and other state partners.

2. Appropriate levels of capacity are built to encourage and support learning to improve care for heart disease and stroke patients.

3. Educational opportunities are evaluated to measure their effectiveness and to assure material is based on current evidence-based guidelines.

4. Demonstrated improvement in the quality of health care provided is rewarded through appropriate incentive programs.

Today in Washington:

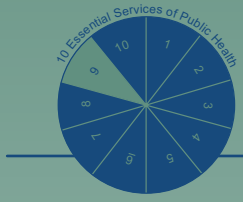
Evaluation is critical to determining the success of any program or intervention. Current systems can evaluate the effectiveness of some programs throughout the state, but Washington as yet lacks a comprehensive set of such measures.

Goal 9:

The heart disease and stroke prevention system's accessibility, effectiveness, and quality of care are measured against a consensus set of statewide (public and private) CVD performance measures that include established measurement benchmarks.

Objectives:

1. Convene a public/private stakeholder group of data users to identify consensus measurement sets.
2. Identify existing benchmarks, performance measures, and currently required reporting.
3. Identify gaps, and develop new performance measurement approaches where none exist.
4. Assure data systems can measure as planned.
5. Conduct a critical review of the data, evaluate the system, and make recommendations to the steering council to improve performance.
6. Provide performance data to programs and providers with the overall state picture, and apply data for internal quality improvement and performance improvement as appropriate.
7. Provide data to purchasers and consumers regarding system performance as appropriate.



9. Evaluate effectiveness, accessibility, and quality of personal and population-based health services.

Evaluation:

1. Appropriate CVD performance and outcome measures are agreed-upon and used to measure effectiveness of the system that addresses heart disease and stroke prevention and management.

2. Technical assistance is provided to local public health systems and other state partners about the availability, utilization, outcomes, and effectiveness of population-based and personal health services.

3. Ongoing assessment of and quality improvement in the state health system's performance and capacity is conducted.

4. A public/private stakeholder group is convened to identify and prioritize performance and outcome measurement sets.

Today in Washington:

Washington State is fortunate to have a strong research community to address issues related to heart disease and stroke prevention and management. Researchers are translating more research findings to inform the public and personal health practice fields on the applicability of their work.

Goal 10:

Research is integral to the action plan and is encouraged on strategic issues. The practice community is informed of the applicability of established research.

Objectives:

1. Identify, and continue to evaluate, areas in the action plan where research would be useful in understanding the issues and impacts of initiatives as implemented in various settings.

2. Develop methods to promote and finance strategic research, building on all opportunities to influence research agendas, including collaboration with other state chronic disease programs, as appropriate.

3. Develop collaborative relationships with groups including research organizations, tribes, the Indian Health Service, and other state chronic disease programs.

4. Support the transfer of knowledge from science to service by applying research findings as they relate to the framework and performance measures.

5. Ensure that the applicability of research findings is broadly disseminated to providers and the community.

10. Research for new insights and innovative solutions to health problems.

Evaluation:

1. Research findings are translated to highlight applicability to providers and the community in Washington.

2. Methods are developed and supported in partnership with local public health agencies and other partners that promote strategic research.

3. Communication about research activities that are relevant to public health practice is regularly assessed.

4. Collaborative relationships are developed with groups to promote and finance strategic research, as well as to influence research agendas.

Next Steps

We need active and engaged partners to implement the Washington State Public Health Action Plan for Heart Disease and Stroke Prevention and Management. Through partnerships with institutions, professional organizations, and other groups, we will develop and implement programs and focus work in our communities, worksites, and the health care system.

Next steps include identifying additional partners to prioritize objectives and needed strategies and to develop detailed plans of implementation. We will develop a process to measure progress toward outcomes. It is critical that we achieve close collaboration in carrying out these next steps. All who work in the area of heart disease and stroke prevention and management are encouraged to support this effort.

By working together to implement this action plan, we can achieve our vision:

It doesn't matter who you are, where you live, or what you know:

In Washington State, we have access to a coordinated and effective system of heart disease and stroke education, screening, and care that results in lower risk of vascular events and improved quality of life.

Appendix A. Glossary

These definitions are taken from *A Public Health Action Plan to Prevent Heart Disease and Stroke*, published by CDC in 2003.

Age-adjusted mortality rate is the number of deaths occurring per 100,000 population per year, calculated in accordance with a standard age structure to minimize the effect of age differences when rates are compared between populations or over time.

Blood cholesterol is the blood concentration of a family of lipid or "fatty" molecular compounds obtained directly from the diet or produced in the body from fatty dietary components. It is a necessary factor in the development of atherosclerosis; total blood cholesterol concentration is classified as "high" if it is greater than or equal to 200 mg/dL.

Cardiovascular disease (CVD) refers to any of the disorders that affect the circulatory system. These include the following:

- **atherosclerosis**, a pathological condition affecting the medium-size and larger arteries, especially those that supply the heart (the coronary arteries), the brain (the carotid and cerebral arteries), and the lower extremities (the peripheral arteries), as well as the aorta. Atherosclerosis underlies the occurrence of heart attacks, many strokes, peripheral arterial disease, and dissection or rupture of the aorta.

- **congestive heart failure (CHF)**, also known as heart failure, an impairment in the pumping function of the heart due to heart disease. It often leads to physical disability and increased risk of additional cardiovascular events.

- **coronary heart disease (CHD)**, caused by impaired circulation in one or more coronary artery. It is often diagnosed following chest pain (angina pectoris) or a heart attack, CHD is the most common type of cardiovascular disease, causing more than 50% of CVD deaths.

- **diseases of the heart**, based on the International Classification of Diseases (ICD) codes and including coronary heart disease, congestive heart failure, and others. Importantly, this category does not include atherosclerosis or cerebrovascular disease (stroke).

- **heart disease**, referring to any affliction that impairs the structure or function of the heart (e.g., atherosclerotic and hypertensive diseases, congenital heart disease, rheumatic heart disease, and cardiomyopathies).

- **stroke**, also known as cerebrovascular disease, or a brain attack, the interruption of blood supply to the brain due to either an obstruction or rupture of a blood vessel. Stroke that is not fatal often leads to some level of physical or cognitive disability.

High blood pressure, a condition in which the pressure in the arterial circulation is elevated. It is associated with increased risk for heart disease, stroke, chronic kidney disease, and other conditions. Blood pressure is considered "high" if systolic pressure (measured at the peak of contraction of the heart) is greater than or equal to 140 mm Hg or if diastolic pressure (measured at the fullest relaxation of the heart) is greater than or equal to 90 mm Hg.

Hypertension: see high blood pressure

Modifiable characteristics are factors related to CVD risk that are amenable to change (e.g., diet, physical activity, smoking), in contrast to those that are intrinsic to the individual (e.g., age, sex, race, genetic traits).

Primary CVD prevention refers to a set of interventions, including the detection and control of risk factors, designed to prevent the first occurrence of heart attack, heart failure, or stroke among people with identifiable risk factors.

Secondary CVD prevention refers to a set of interventions aimed at survivors of acute CVD events (e.g., heart attack, heart failure, stroke) or others with known CVD in which long-term case management is used to reduce disability and risk for subsequent CVD events.

Appendix B. Description of existing data systems

The State of Washington **Behavioral Risk Factor Surveillance System (BRFSS)** is a large, continuously conducted, telephone health survey that enables the CDC, state health departments, and other health agencies to monitor modifiable risk factors for chronic diseases and other leading causes of death. Self-reported BRFSS data are gathered from a randomly selected sample of adults living in households with telephones. Interviews, conducted by a survey firm under contract to DOH, follow protocols for survey administration that have been established by the Centers for Disease Control and Prevention (CDC). Computer-assisted interviewing is used to minimize errors by interviewers. The questionnaire includes core questions used by all states and questions on topics of specific interest to Washington. Data used in this report represent English-speaking adults age 18 years and older in households with telephones.

The **Comprehensive Hospital Abstract Reporting Systems (CHARS)** provides data on inpatient stays for all patients treated in state-licensed acute care hospitals in Washington on an annual basis. CHARS does not include visits to emergency rooms, outpatient surgery, outpatient clinics, psychiatric, military and Department of Veterans Affairs hospitals,[1] free-standing surgeries, mental health, substance abuse, and rehabilitation centers, and birthing centers. Hospitals collect data by abstracting information from the uniform billing form. They then code each diagnosis and procedure and submit data to the state CHARS contractor by tape, cartridge, or electronic file transfer within 45 days of the end of the month. Diagnoses associated with each hospitalization are coded according to the International Classification of Disease, Clinical Modification of the Ninth Revision (ICD-9-CM).

The principal diagnosis is the first-listed diagnosis, considered to be the main reason the patient was admitted to the hospital. Beginning in 1993, as many as eight other diagnoses may be listed for additional conditions that had an effect on the hospitalization. On a quarterly basis, hospitals certify that the number of discharges and hospital charges are 95% correct. Several Washington State Department of Health studies have verified the accuracy of CHARS data.

The **Death Certificate System** provides annual information on all deaths in Washington and those of Washington residents who die in other states “estimated 99% complete”. Demographic information is gathered by the funeral director; cause of death is reported by the attending physician or the coroner/medical examiner. Instruction manuals are provided to physicians, coroners, and medical examiners, as well as local health jurisdictions and others involved in completing and managing death certificates. The certificate is filed with the local health jurisdiction, retained for about 60 days for local issuance purposes, then filed with the Department of Health. Classification and coding of data on Washington death records follow the National Center for Health Statistics (NCHS) guidelines as defined in Vital Statistics Instruction Manuals parts 1-20 (Published by the U.S. Department of Health and Human Services, Public Health Service, CDC, National Center for Health Statistics, Hyattsville, MD). Causes of death are coded according to the International Classification of Disease, World Health Organization, Ninth Revision (ICD-9) for 1979-1998; Tenth revision (ICD-10) for 1999 and later. Edits and a physician query system are used to check for internal consistency and logic and completeness of cause of death.

Appendix C. Endnotes

1. Washington State Department of Health. *Health of Washington State*. Olympia, WA, 2002 Aug [cited May 24, 2005], 418p. Available from http://www.doh.wa.gov/HWS/HWS2002.htm

2. BRFSS is a continuously conducted telephone health survey that enables health agencies to monitor modifiable risk factors for chronic disease. For more information, see Appendix B.

3. *Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7)*. National Heart, Lung, and Blood Institute. Bethesda, MD. JAMA 2003;289:2560-71.

4. *Third Report of the National Cholesterol Education Program (NCEP) Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III)*. National Heart, Lung, and Blood Institute, Bethesda, MD. NIH Publication No. 01-3670. May 2001.

5. Washington State EMS and Trauma Steering Committee. *State of the State: Emergency Cardiovascular Care in Washington State.* Nov. 15, 2002.

6. U.S. Department of Health and Human Services. *A Public Health Action Plan to Prevent Heart Disease and Stroke.* Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2003.

7. *The Future of Public Health.* Institute of Medicine. Washington, DC: National Academy Press, 1988.

8. CHARS provides data on inpatient stays for all patients treated in state-licensed acute care hospitals in Washington. For more information, see Appendix B.

9. The Death Certificate System provides annual information on all deaths in Washington and those of Washington residents who die in other states. For more information, see Appendix B.

10. Wagner EH. *Chronic disease management: what will it take to improve care for chronic illness?* Effective Clinical Practice. 1998;1:2-4. http://www.improvingchroniccare.org. This model identifies the essential elements of a health care delivery system that encourages high quality chronic disease and preventive care. It is developed by Improving Chronic Illness Care, a national program supported by the Robert Wood Johnson Foundation with direction and technical assistance provided by Group Health Cooperative's Sandy MacColl Institute for Healthcare Innovation.

For More Information

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